



TRELLIS + Co.

Mason Jar FERMENTING

Vegetable Fermenting to Fit Your Lifestyle

INCLUDES:

- + The Basics
- + Equipment
- + Instructions
- + Recipes (4)
- + Troubleshooting
- + Resources

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TRELLIS + Co.

Mason Jar
FERMENTING

Vegetable Fermenting to Fit Your Lifestyle

ABOUT US

We are a family business created by a bioengineer living on a homestead in one of the remotest areas in the Lower 48. When “running to the store” is a 4-hour drive, every purchase must be a robust and functional investment. Here at Trellis + Co. we design products worth investing in.

Our lifestyle inspired our line of garden-to-table kitchen tools. As gardeners, cooks, and canners, we develop creative solutions to our own kitchen conundrums and pass on that wisdom to you. Also, since we’re kind of obsessed with the planet, our products are designed to last a lifetime—keeping money in your pocket and garbage out of landfills.

“We, the fermenters, know a true thing: vegetable fermentation is quite the simple process. In fact, the only thing you really need to join our ranks is the spirit of discovery and the desire to make food more flavorful and healthful.”

—Amanda Feifer of *Pickle.com*

INTRODUCTION:

Thousands of people are (re)discovering the joys and health benefits of fermented vegetables and they have been turning to the humble, ubiquitous Mason jar as a low-cost vessel for their homemade ferments.

Turns out, when you tell people you’re writing an ebook on fermenting, they tend to volunteer stories from their personal experience. Unfortunately, the refrain goes something like this: “I really want to make my own sauerkraut/kimchi/whatever, and I made a couple decent batches a while ago, but then I had some that turned out weird and I wasn’t sure why and I just sort of stopped trying.”

This is a minor tragedy.

Our goal is to empower you so you feel excited and confident about fermenting: now, today!

Armed with the Trellis + Co. lids and PickleHelix, a grasp of the basic principles, and a few bombproof recipes—which you’ll find in these pages—you will achieve consistent, delicious results. Promise.

We also include some ideas on how to incorporate those beautiful ferments into your everyday eating. Because, like ships, ferments are safe in harbor, but that is not what ferments are for.

It bears mentioning that our goal here is **not** to proselytize on the manifold health benefits that come with consuming fermented foods, or to provide you with an exhaustive treatise on the science of fermentation. Nope. If you’re here, we assume you’ve accepted the premise that fermenting is awesome and you’re ready to just get down to business.

However, for those interested in diving deep, plenty has been written about these topics elsewhere and we provide a list of some of these resources at the end of this publication.

Also, we will limit ourselves to talking about lacto-fermenting vegetables. It is the easiest, simplest and safest place for the fermenting first-timer to start. It is possible—and worthwhile—to lacto-ferment fruit, grains, dairy, and meat but those require different strategies that are beyond the scope of this little ebook.

DISCLAIMER:

Neither the publisher nor the author takes any responsibility for any possible consequences of any person reading or following the information in this book. Unless those consequences are **euphoria** and a **profound sense of well-being**, in which case that was probably our fault.

This book is not intended as a substitute for the medical advice of physicians. The reader should regularly consult a physician in matters relating to his/her health and particularly with respect to any symptoms that may require diagnosis or medical attention, because otherwise how will physicians earn a living?

Although the author and publisher have made every effort to ensure that the information in this book was correct at press time, the author and publisher do not assume and hereby disclaim any liability to any party for any loss, damage, or disruption caused by errors or omissions, whether such errors or omissions result from negligence, accident, or any other cause.

Happy fermenting!

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FUNDAMENTALS OF FERMENTATION:

BASICS

Microorganisms cause food spoilage. Food preservation is basically the process of manipulating available moisture, pH, temperature and other conditions to prevent unwanted microorganism activity while sometimes encouraging beneficial microorganism activity.

Lacto-fermentation preserves food because the salt-loving and anaerobic *Lactobacillus* strains of bacteria—given the advantage of a salty, anaerobic environment—are able to out-compete “bad” microorganisms that require oxygen and are less tolerant of salt. In the process, *Lactobacilli* convert carbohydrates in the food into acids, gases and in some cases alcohol. This lowers the pH and creates conditions that ensure those “bad” microorganisms cannot get re-established.

Lactobacillus species occur naturally on the surface of vegetables (and they live in our bodies). Our job as fermenters is simply to create conditions that give *Lactobacilli* a leg-up on the competition—i.e. no oxygen and adequate salt. *Lactobacilli* will take it from there.

NOTE:

Lactobacilli swing both ways. They can be aerobic, happily, but can also flourish in anaerobic conditions. Nifty, huh?

NOTE:

The health and diversity of species of beneficial organisms can be negatively impacted by the use of industrial fertilizers and pesticides. For best practice, use organically-produced produce for your home ferments—you *will* get better results overall.

+ Pickling vs. Lacto-fermenting

Pickling is the general term for preserving foods in an acidic medium. Often added vinegar provides that acidity.

Lacto-fermentation is a type of pickling where the acidity comes not from vinegar but from the lactic acid naturally produced by the metabolic action of *Lactobacilli*.

Lacto-fermented foods are fundamentally different from foods pickled with vinegar. The former are not only more flavorful, nutritious and easier to digest, they're *living* foods full of probiotics.

So, without further ado,
here are the...

+ Principles of Lacto-Fermenting Vegetables

1. Use non-iodized salt without caking agents. Sea salt is best!
2. Limit the exposure to air (oxygen).
3. Keep those vegetables submerged!
4. Use clean equipment. Wash equipment in hot, soapy water and rinse well.
5. Use non-chlorinated water. If you don't have access to filtered, well or spring water, you can remove chlorine from tap water by boiling it and letting it cool.
6. Large vegetables such as whole cucumbers or slices of carrot use a 5% brine
7. Shredded vegetables as in sauerkraut or kimchi use a 3% brine
8. Ferment at "room temperature". (Think of it this way: if the conditions are a bit too cold or too hot for your own comfort, it probably is for *Lactobacilli*, too.)
9. Allow carbon dioxide to escape.

+ Quick Brine Calculations

Per 1 quart of water:

3% = 1 oz salt
or approximately 2 Tbsp

5% = 1.6 oz salt
or approximately 3 Tbsp

(Weighing the salt is best.)

A good rule of thumb when adding salt directly to a vegetable mixture (as you do when making sauerkraut, for example) is $\frac{3}{8}$ oz salt per pound of vegetables.

If you adhere to these guidelines you can get creative with your vegetable ferments! The recipes we've included here are some of our favorites, yet they can be endlessly customized based on your preferences or what is in season.

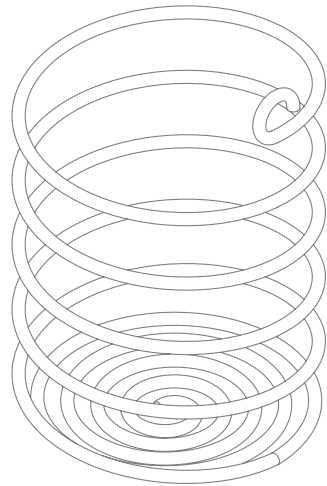
EQUIPMENT

Besides the obvious clean equipment—pint, quart and half-gallon glass wide-mouth Mason jars—let’s talk a little bit about the Trellis + Co. system.

Trellis + Co. fermenting lids may be used with **most Mason jar fermenting recipes that call for wide-mouth Mason jars** and they make your life **so much easier**. When using typical canning lids, you must “burp” your jars every day to release carbon dioxide. Otherwise, your glass jar may break from the build-up of pressure.

Our lids burp themselves. Our specially designed umbrella valve releases carbon dioxide as it builds up in the jar while simultaneously preventing oxygen and unwanted bacteria from invading your ferment.

Regular canning lids are vulnerable to corrosion, as well. But our lids are constructed from 316 stainless steel, which is even more resistant in saline environments than regular 304 stainless steel.



+ PickleHelix Revolution

Step aside, Watson + Crick. The Trellis + Co. PickleHelix is *kind* of a game-changer. No more jury-rigged solutions to weighing down your ferments. No more fiddling with pie weights in bags or water-filled ziplocs. The PickleHelix coupled with our fermenting lid is going to take the guesswork, hoping and praying out of the equation and will be your partner in achieving amazing results.

+ Remember These Steps to Success

- 1. Follow The Recipe:** Prepare your ferment using a Mason jar-oriented recipe. Replace the step “burp once a day” to “check once-in-a-while if you feel like it”.
- 2. Weigh it Down:** Remembering to **leave adequate headroom**, install the PickleHelix and screw down the lid firmly.
- 3. Store Out of Direct Sunlight:** Keep your jar at room temperature on a dim corner of your kitchen counter, or even in a cupboard, pantry or basement
- 4. Our Brine Bubbleth Over:** Sometimes ferments get so excited that brine escapes through the valve. This is normal. Provide for this possibility by placing your Mason jar on a plate or tray during the fermentation period.

INGREDIENTS

It bears repeating: once you’ve seen one cabbage, you have **not** seen them all. Results **will** vary and the quality of your finished product **does** depend on the quality and provenance of the starting ingredients.

Old and dried out, or conventional (i.e. grown with the use of industrial fertilizers and pesticides) produce will not make as fine a ferment as that which was made with organic produce fresh from the garden or farmers’ market.

In fact, we suspect some of the difficulties that folks experience when their **ferments fail** may be **due to a lack of diversity of organisms** on their raw ingredients.

On balance, though, fermenting with vegetables is remarkably forgiving. For example, you can take the basic sauerkraut recipe included in this ebook and get creative with the ingredients. Add caraway seeds if you like it rye-style. Got radishes? Slice them thin and throw them in! Peppers, leeks, purple cabbage? Try it! Just keep the principles in mind and maintain the salt ratio and you’ll be fine





“In nineteenth-century Russia, sauerkraut was valued more than caviar.”
—Mark Kurlansky, *Salt: A World History*

RECIPES: Tried + True

Here are just a few of our very favorite and most reliable recipes. The crowd pleasers. The ones we keep coming back to. We hope you enjoy them as much as we have.

SAUERKRAUT

Sauerkraut originated in eastern Europe. This recipe fills approximately 1 quart Mason jar, but it can be scaled up easily. We once made a single batch from 45 lbs of cabbage!

Ingredients:

1 Tbsp of unrefined sea or kosher salt per 1 head of cabbage, preferably organic (approximately 2 lbs)

Directions:

Start with clean equipment. Discard any discolored outer leaves, core and thinly slice or shred the cabbage. The thinner you can get the cabbage, the better.

Toss the salt and cabbage together in a large bowl and let it rest for a while. The salt will begin to make the cabbage wilt and draw out moisture. Mix, squeeze and crush the cabbage with your hands to bruise it and draw out more water.

Pack this mixture as tightly as you can into your Mason jars. Ideally you will have no air pockets. We use the blunt end of a wooden spoon to pound, crush and pack the mixture into the jars. The cabbage should be submerged in its own juices by the time you reach the top (minus headroom) of the jar. If not, prepare a brine of 1.5 Tbsp salt per quart of water and use that to top up the brine. Install PickleHelix and screw on your Trellis + Co. lid.

For best results place your jars on a plate or tray in a dark place for up to a month. It will begin to be noticeably tangy after as little as a week, but it takes four weeks to develop full health benefits and flavor. You can transfer it to the fridge at this point and it should keep for at least six months—if you don't eat it all before then!

Notes:

If you really get into sauerkraut you might consider buying a mandoline. It makes the production of large batches of sauerkraut a breeze and you can get that cabbage shredded nice and fine.

KIMCHI

Kimchi is a traditional Korean ferment that has been around since at least 10 BCE. Every family would have had their own slight variation on the basic recipe. You can safely double the quantity of red chili flakes if you know you like heat. Otherwise, stick with 2 Tbsp or even 1 Tbsp if you know you don't like heat. Fills about 2 quart jars.

Ingredients:

1 head napa cabbage (1 ½ to 2 pounds), cored and cut into 2-inch pieces
1 Tbsp kosher or sea salt
2 Tbsp Korean red chili flakes or crushed red pepper flakes
6 cloves garlic
A 2-inch piece of fresh ginger, peeled and chopped
¼ cups water
1 tsp sugar
2 tsp fish sauce or miso paste

Directions:

Start with clean equipment.

Toss the cabbage with the salt in a large bowl. Cover and let it sit at room temperature overnight.

The next day, take handfuls of the cabbage and squeeze it dry, and transfer it to another bowl, discarding the liquid. Do not rinse the cabbage.

Combine the chili flakes, garlic, ginger, water, sugar, and fish sauce or miso in the bowl of a food processor. Process until smooth.

Add to the cabbage mixture, tossing to combine, then pack tightly into Mason jars and install your PickleHelix. Screw on your airlock lid, put the jars on a tray or plate and let sit on your countertop for 2-3 days. Transfer to refrigerator. Try not to bust into a new batch of kimchi until it's at least a week old. It really only gets better with age. In the fridge it will continue to develop and improve for a month or more.

Notes:

You can make do with generic crushed red pepper flakes at first, but if you find you like kimchi, it's worth procuring the real Korean chili flakes known as gochugaru. We recommend mild gochugaru.





ESCABECHE

This version of Escabeche derives from Mexican cuisine. Fills ½ gallon Mason jar

Ingredients:

3 jalapeños, sliced about ¼" thick
2 lbs carrots, sliced on the bias about ¼" thick
1 onion, sliced about ¼" thick
5 cloves garlic, crushed
1 tsp oregano
½ tsp coriander, whole
½ tsp cumin seed, whole
½ tsp black peppercorns

For the brine:

1.6 oz kosher or sea salt
1 qt water

Directions:

Start with clean equipment.

Layer the jalapeños, carrots, onion and garlic in a ½ gallon Mason jar. Add the oregano, coriander, cumin and peppercorns. Prepare the brine by dissolving the salt in the water. Pour over the escabeche. Install PickleHelix. If the carrot mixture is not submerged after being “weighted” thusly, top it off with a little more brine. Apply Trellis lid, place the jar on a plate and leave it on your countertop for 3-7 days before transferring to the fridge. Escabeche will keep (and improve) for a month or more.

Notes:

You can substitute any fleshy pepper for the jalapeños.

TOMATILLO SALSA

A crowd pleaser! This recipe is adapted from [fermentationrecipes.com](https://www.fermentationrecipes.com). It fills about a pint Mason jar.

Ingredients:

1 lb tomatillos
½ medium onion
1 jalapeño pepper
1 oz fresh cilantro (½ cup packed loosely)
1 Tbsp lime juice
2 cloves garlic
½ Tbsp salt

Directions:

Start with clean equipment.

Remove the papery husk from the tomatillos and mince all ingredients finely by hand or place into a food processor and combine until reaching salsa-ish consistency.

Place ingredients into a Mason jar and screw on your Trellis + Co. fermenting lid. You won't need to deploy the PickleHelix for this one.

Put the jar on a plate to catch any overflow and leave at room temperature and out of direct sunlight for 7 to 14 days. You'll notice a nice tang to the salsa when it's ready.

“The scientific literature has never recorded a case of food poisoning involving raw vegetables that have been fermented properly.”

—Frederick Breidt, *USDA microbiologist*

TROUBLESHOOTING:

WHEN TO WORRY, WHEN NOT TO

First and foremost, as opposed to botched canning jobs, nothing will generally kill you with vegetable fermenting gone “wrong”. Isn’t that comforting?!

Moreover, any problems with your ferments will make themselves known to your eyes, nose and taste buds. Ferments (especially funky ones like kimchi) will have a particular odor, but it’s basically pleasing. The general rule of thumb is if it smells *bad*, or tastes *bad*, then you should toss it.

Finally, we are proud of the fact that the Trellis + Co. fermenting lids and PickleHelix do a tremendous job preventing a lot of these troubleshooting scenarios in the first place!

But for what it’s worth, here are some specific guidelines...

Problem: Sometimes your ferments can develop a white film that looks a bit like mold but is actually something known as kahm yeast.

Prevention/Solution: Skim the kahm yeast from the surface and discard; also discard any veggies that have visible yeast on it. Kahm yeast is aerobic, so make sure your lid is screwed tight! See below for more prevention guidelines. Enjoy the rest of your ferment!

Problem: Your ferment is slimy

Prevention/Solution: Toss it. See steps for prevention below.

Problem: Your brine gets cloudy

Prevention/Solution: This is actually normal and not a problem.

Problem: A colorful, fuzzy or puffy mold has developed on the surface.

Prevention/Solution: If you’ve caught it early and it’s superficial growth, you may still be

able to salvage most of the vegetables that are still submerged by removing the mold from the surface and any affected veggies, as with kahm yeast. If the remaining vegetables smell and taste ok, they are most likely ok to consume, and many people do without consequence. But there are also fermenters who err on the side of caution and throw it out. Truly, this will be a personal judgment call.

It will not happen in the first place, though, because you are using the Trellis + Co. system and you are remembering to:

1. Keep your **temperature** reasonable—remember, most people would be uncomfortable with a constant room temperature above 80 degrees. *Lactobacilli* don’t like it, either.
2. Use adequate **salt**.
3. Make sure your vegetables are **submerged** (Thank you, PickleHelix!)
4. Start off with beautiful, fresh, top-quality ingredients!

“Given the War on Bacteria so culturally prominent in our time, the well-being of our microbial ecology requires regular replenishment and diversification now more than ever.”

—Sandor Ellix Katz, *The Art of Fermentation*

GET CULTURED: Every Day!

Fermented foods were a regular feature in the traditional diets of all peoples the world over, since the dawn of history. Somewhere in the hazy middle there, we in the industrialized nations lost the plot.

Now we are re-learning what our ancestors already understood: that the regular consumption of these foods is hugely important for physical and even mental health.

So the Trellis + Co. family would like to encourage you to incorporate your beautiful fermented creations into your everyday life. Yes, there are many specific dishes that showcase fermented foods, and those are delicious and fun to prepare.

(Like bibimbap featuring kimchi or kapustnyak featuring sauerkraut. More links to websites with recipes can be found in the Resources section.)

But you don't always have to go to those lengths! We invite you to experiment with getting it out of the fridge at **every meal** and just having it available as a side-dish. Scoop kimchi or sauerkraut onto tortilla chips at snack-time. Or enjoy our fermented tomatillo salsa the same way, obviously!

Thank you for investing in the Trellis + Co. fermenting system for Mason jars. We wish you and yours a long, healthy and happy life—full of funky ferments.

RESOURCES:

Cultures for Health: This website is a treasure trove of recipes and information.

Wild Fermentation Uncensored: We started following this Facebook group a few months ago, and we've accumulated a plethora of recipes and fermenting buddies.

Pickle.com: Amanda Feifer is the author of *Ferment Your Vegetables*, and she includes a variety of scrumptious recipes on her website. Check out her Kombucha directions.

Clean Slate Farm: Includes a variety of Mason jar fermenting recipes, including simple dill pickles.

Wild Fermentation Support Forum: A great place to find recipes and troubleshoot with hardcore fermenters.

FURTHER READING

The Art of Fermentation: An In-Depth Exploration of Essential Concepts and Processes From Around the World by Sandor Ellix Katz

Wild Fermentation: The Flavor, Nutrition and Craft of Live-Culture Foods by Sandor Ellix Katz and Sally Fallon

Fermented Vegetables: Creative Recipes for Fermenting 64 Vegetables & Herbs in Krauts, Kimchis, Brined Pickles, Chutneys, Relishes & Pastes by Christopher and Kirsten Shockey

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ABOUT THE AUTHOR:

Laurel Holding has been preserving food, cooking professionally, guiding extended backcountry expeditions and teaching primitive and traditional living skills for over 16 years. An accomplished bowhunter, Laurel has taken small game, fish, upland game, mule deer and elk by spotting and stalking, upholding fair chase ethics. These efforts provide for the majority of meat in her diet. She sits on the Conservation Committee for the Professional Bowhunters Society. Laurel is also a butcher, having received formal training at Daylesford Organic Farm Shop of London, England. She holds a Master in Education from Harvard University and lives in a 16' ger in southern Utah.